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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,073	06/12/2002	Kiyoshi Fuda	220036USOPCT	7579

22850 7590 06/16/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

PRICE, ELVIS O

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 06/16/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,073

Applicant(s)

FUDA ET AL.

Examiner

Elvis O. Price

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 13.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims 1-10 and 12-19 are pending in the application.

Information Disclosure Statement

The information disclosure statement, filed 3/10/04, complies with the provisions of 37 CFR 1.97, 1.98 and MPEP02 § 609. It has been placed in the application file, and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franklin et al. {WO 9410973}, in view of Hiroaki et al. {Abstract of the English Translation of the 76th Spring Meeting of chemical Society of Japan}.

Applicants claim, in brief, a treatment process of a solution containing fluorinated organic compound, comprising adding divalent and trivalent metal salts to the said

Art Unit: 1621

solution thereby forming a layered double hydroxide (LDH) having the fluorinated organic compound between the layers to absorb and fix the fluorinated organic compound.

Franklin et al. teach a process for preparing layered double hydroxides (LDH) comprising adding divalent and trivalent metal salts to a solution containing organic compounds, containing a hydrocarbon backbone, so as to absorb and fix the said organic compounds between the layers of the LDH (See Summary of the Invention; page 5; and Examples 1-7). The difference between the presently claimed invention and what the Franklin et al. reference teaches is that the Franklin et al. reference does not teach the using fluorinated organic compounds to absorb and fix between the layers of the LDH.

Hiroaki et al. teach a process of absorbing and fixing (intercalating) fluorinated organic compounds (fluorinated surfactants) between the layers of layered double hydroxides. Hiroaki et al. also teach that the fluorinated surfactants have fascinating characteristics such as thermal stability, water as well as oil repellency, ability of lowering the surface tension and so forth (see abstract).

It would have been *prima facie* obvious to one having ordinary skill in the art, in view of the teachings of the Franklin et al. and Hiroaki et al. reference, to arrive at the presently claimed invention because Franklin et al. teach a similar process for preparing layered double hydroxides (LDH) comprising adding divalent and trivalent metal salts to a solution containing organic compounds, containing a hydrocarbon backbone, so as to absorb and fix the said organic compounds between the layers of the LDH and

Art Unit: 1621

Hiroaki et al. teach LDH containing fluorinated organic compounds absorbed and fixed between the layers of the LDH.

One having ordinary skill in the art, desiring to arrive at art recognizable methods for obtaining LDH with fluorinated organic compounds intercalated between the layers of the LDH, would have been motivated to substitute the fluorinated surfactants, taught by Hiroaki et al., into the Franklin et al. process for preparing LDH. One having ordinary skill in the art, desiring to recover fluorinated surfactants from solution, would have been motivated to treat a solution of fluorinated surfactants, with divalent and trivalent metal salts to so as to absorbed and fix the said fluorinated surfactants between the layers of the formed LDH. Therefore the presently claimed invention would have been obvious to one having ordinary skill in the art.

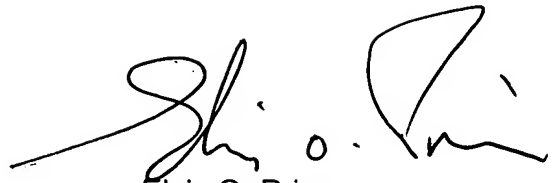
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvis O. Price whose telephone number is 571 272-0644. The examiner can normally be reached on 8:30 am to 5:00 pm; Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571 272-0646. The fax phone numbers for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1235.

Application/Control Number: 10/088,073
Art Unit: 1621

Page 5



Elvis O. Price

June 10, 2004